What are the key trends affecting the downstream processing industry in 2017? Senior executives from leading technology developers discuss the challenges and prospects facing refiners. To begin this review of the prospects for petroleum refining, we examine a long-range view of trends in the International Energy Agency's latest *World Energy Outlook*.

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In 2016, global growth should fall to 3.1% before rising back up to 3.4% in 2017 according to IMF's latest estimations. Long-term perspectives in industrialised countries are moderate and a firming up of growth is forecasted at mid-term in emerging and developing countries. These forecasts rely on several important hypotheses including, in particular, the gradual slowdown of the Chinese economy with growth rate close to 6% at mid-term. The Chinese government will have to manage the transition from a growth driven by investments and exports to a model based on domestic consumption and development of services without leading to a major economic slowdown. India, another heavyweight in terms of global demography, should continue growing at a sustained rate of 7.6% in 2017.

Growth in demand for crude oil and products associated to its extraction should be close to 1.2% to reach 97.5 million b/d in 2017. Uncertainty on crude oil oversupply should remain and will equally depend on the OPEC's policy about its level of production and the tight oil level of extraction itself related to crude oil prices. As a final result, crude oil prices should continue to fluctuate between $40 and $60/bbl during 2017. This will contribute to maintain investments in exploration and production at low levels and could translate to a production shortfall as we approach 2018-2020, leading to a new oil crisis.

For more than 20 years, gasoline and diesel have been gradually reformulated and their sulphur content reduced to comply with legislation mandating decreased emissions and lower levels of airborne pollutants. In 2017, this trend will continue. The US government is enforcing the Tier 3 regulation standards and large US refineries must comply by 2017. To help curb air pollution, which has reached worrying levels in Chinese cities, the government is aggressively implementing China V fuel quality standards. By 2017, on-road fuels should contain less than 10 ppm sulphur and non-automotive diesel will have to comply with China V standards by 2018. Air quality is also an issue in many Indian cities. The Ministry of Road Transport announced that Indian refineries will have to produce Bharat Stage 6 standard fuels, an equivalent of Euro 6, by 2020.

Recently the IMO confirmed that the sulphur content of marine fuels will be capped at 0.5 wt% globally with effect from 1st January 2020.

Those new regulations will require investment in additional hydroprocessing capacities.

Dieselgate, which is witnessing new developments in late 2016, could lead to a partial balancing of the on-road diesel/gasoline demand ratio in Europe which experiences the highest rate of dieselisation worldwide at about 2.3 (v/v). In this ever-changing situation, improving the refining asset's flexibility enabling it to adapt to market trends virtually in real-time will become a must. Technologies, advanced catalysts and digital solutions will be the successful combination for a higher performance and profitability.

In addition and more than ever integration of refining and petrochemical sites will be required to mitigate risks related to raw material and product price variations, to overcome market trend changes, and to benefit from the stronger dynamic of the petrochemical market and improve asset profitability.

Friday 4th November 2016 will remain a historic day for people and the planet with the Paris Agreement entering into force. With ever-tightening environmental regulations, new significant challenges that will drive innovation are emerging from the energy transition and climate change.

Energy consumption represents 34-69% of the refinery's total operating costs depending on its location and the local energy cost. Therefore, every fraction of energy savings in refining or petrochemical units is not only a way to reduce greenhouse gas emissions but also to create value.

Our experience as a licensor has taught us that during projects, tight schedule and lack of time mean energy efficiency is not sufficiently optimised. To take full advantage of our strong knowledge in process and technology, we developed the CEED methodology, standing for Custom and Efficient Early Design. During the early stage of the project, in close collaboration with the refining and petrochemicals operators, alternate schemes are defined, carefully evaluated and the most appropriate option is selected taking into account: energy constraints, capex, opex and plant operability.

The decisions made by the next US President and its administration will also be key factors that will have an influence on the course of events in 2017 and after.